

Contract No.: EP-W-09-002  
WA #: 032-RICO-02KD

## Region 2 RAC2 Remedial Action Contract

### **Final Quality Assurance Project Plan Addendum No. 2, Biota Sampling**

Matteo & Sons, Inc. Site  
Remedial Investigation/Feasibility  
Study  
Thorofare, New Jersey

April 1, 2016

**CDM  
Smith**

**EPA REGION 2  
REMEDIAL ACTION CONTRACT 2**

**FINAL QUALITY ASSURANCE PROJECT PLAN ADDENDUM (QAPP) NO. 2  
BIOTA SAMPLING  
Matteo & Sons, Inc. Site  
Remedial Investigation/Feasibility Study  
Thorofare, New Jersey**

Prepared for: US Environmental Protection Agency (EPA) Region 2

Prepared by: CDM Smith

Date: April 1, 2016

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## Introduction

CDM Federal Programs Corporation (CDM) received Work Assignment 032-RICO-02KD under the Remedial Action Contract (RAC 2) number EP-W-09-002, from the United States Environmental Protection Agency (EPA) Region 2, to perform a Remedial Investigation/Feasibility Study (RI/FS) at the Matteo & Sons, Inc. site (the site) located in Thorofare, West Deptford Township, Gloucester County, New Jersey. The purpose of this work assignment is to evaluate the nature and extent of groundwater, soil, surface water, and sediment contamination at the site. The RI/FS process is at the point where additional information is necessary to complete the risk assessments for the site to allow evaluation and selection of a remedy.

## Purpose of QAPP Addendum

This document is the QAPP Addendum and covers additional RI/FS data collection activities intended to provide site specific biota tissue data. The principal question being addressed is:

- What is the site-specific bioaccumulation factor for lead, and how will it impact the food chain models used to develop remediation goals for the site?

Lead concentrations in soil data from earlier Remedial Investigation (2012 and 2015 CDM Smith Sampling) activities was utilized to plan a sampling approach to collect a set of representative tissue samples from the site.

This QAPP Addendum has been prepared in accordance with the Uniform Federal Policy (UFP)-QAPP manual (EPA 2005) and is compliant with EPA's QAPP guidance document EPA QA/R-5 (EPA 2002). This work assignment will be implemented in accordance with the quality procedures herein. This QAPP is the governing document for execution of the RI/FS field program.

## Site Overview

The site description, regulatory history, historical investigations and progress of site remediation are detailed in the Final QAPP dated September, 2011. Known contaminants of concern (COCs), lead and polychlorinated biphenyls (PCBs) were identified in soil and sediment during previous investigations. Chlorinated solvents, primarily vinyl chloride, have also been detected in groundwater at the site. Other COCs may be present at the site, which was also used as an unregistered landfill.

The additional RI sampling activities described herein are designed to meet the following objectives:

- Develop a site-specific bioaccumulation factor for lead that will be used in revision of the food-chain models completed as part of the Step 3A Screening Level Environmental Risk Assessment (SLERA)
- Obtain data to support the selection of an approach for site remediation
- Obtain data to support a comprehensive record of decision (ROD)

## Path Forward

In order to meet the RI/FS objectives, the following field tasks will be performed:

- Collection of earthworm samples and co-located surface soils from the open field/ waste disposal and scrapyard areas of the site for development of a site-specific bioaccumulation factor.

The sampling rationale, sampling design and data collection activities are included in detail in QAPP Worksheet 17. Biota and co-located surface soil samples will be collected from the locations shown on Figure 1. CDM Smith plans to implement these activities in accordance with standard procedures and EPA's Field and Analytical Services Teaming Advisory Committee (FASTAC) policy for obtaining analytical services. A full list of analyses to be performed is included on QAPP worksheet 18.

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**QAPP Worksheets #1 and 2: Title and Approval Page**  
**(UFP-QAPP Manual Section 2.1)**  
**(EPA 2106-G-05 Section 2.2.1)**

FINAL QUALITY ASSURANCE PROJECT PLAN (QAPP) ADDENDUM NO.2  
for the  
Biota Sampling  
Matteo and Sons, Inc. Site  
Remedial Investigation/Feasibility Study (RI/FS)

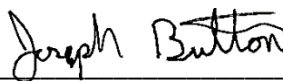
**Contract:** Remedial Action Contract (RAC) 2, EPA Region 2 EP-W-09-002  
**Work Assignment Number/Operable Unit:** 032-RICO-02KD/NA  
**Document Control No.:** 3323-032-02777

**Date:** April 1, 2016

CDM Smith Site Manager (SM):

Joseph Button

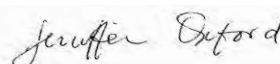
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CDM Smith Project Quality Assurance (QA) Manager:

Jo Nell Mullins

Signature for



RAC 2 Program Manager:

Jeanne Litwin

Signature for



EPA Remedial Project Manager:

Lawrence Granite

Signature

EPA Region 2 Hazardous Waste Support Section QA Officer:

William Sy

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**State Regulatory Agency /Stakeholders (name/title/signature/date) (as applicable):**

United States Environmental Protection Agency (EPA), New Jersey Department of Environmental Protection (NJDEP).

**Dates and Titles of Plans Written for Previous Site Work, if Applicable:**

Final QAPP, Matteo & Sons Inc. Site, September 19, 2011. QAPP Addendum No.1 Additional Remedial Investigation Sampling Plan, December 12, 2014.

**Required QAPP elements and required information that are not applicable to the project, and an explanation for their exclusions:** Worksheets #3 through 8, 12, 13, 19, 21-25, 28 through 35 and 37 are included in the Final QAPP (CDM Smith 2011).

### QAPP Worksheet #9 Project Scoping Session Summary

<b>Projected Date(s) of Sampling:</b> April - May 2016 <b>Site Manager:</b> Joseph Button	<b>Site Name:</b> Matteo & Sons, Inc. <b>Site Location:</b> Thorofare, New Jersey <b>Operable Unit:</b> N/A			
<b>Date of Session:</b> February 4, 2016 <b>Scoping Session Purpose:</b> The objective of the meeting was to discuss a plan to collect tissue samples to support the ecological risk assessment.				
<b>Participants:</b>				
Name	Affiliation	Phone #	Email Address	Project Role
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#### Discussion Items

- Earthworms will be collected from the open field/ waste disposal and scrapyard areas of the Matteo Site following an approach that will focus collection activities within index areas to support risk assessment at the site.
- Surface soil samples co-located with the earthworm locations will be collected and also analyzed for metals and mercury.
- A total of 10 sampling location will be selected from the three distinct area and will be shown on a figure in the QAPP Addendum.



**QAPP Worksheet #14 &16: Project Tasks & Schedule**  
**(UFP-QAPP Manual Section 2.8.2)**  
**(EPA 2106-G-05 Section 2.2.4)**

**Project Tasks:** The biota sampling field investigation will be conducted in the open field/ waste disposal and scrapyard areas of the Matteo Site and consist of sampling and analysis of earthworm tissues and co-located soils. The data provided from this event will be used to supplement the existing data set to support the risk assessment.

**Sampling Tasks:**

Earthworm and soil samples will be collected to generate metals analytical data to support the risk assessment. Specific sampling locations and depths are shown on Figure 1 and Worksheet #18.

The following task will be performed during this supplemental sampling.

- Ten samples will be collected from terrestrial environments of the open field/ waste disposal area targeting index areas that represent a range of lead contamination as determined from the remedial investigation (RI) data.
- Earthworms will be collected by hand with the aid of a stainless steel hand trowel.
- Co-located surface soil samples will also be collected within each index area of earthworm collection from the approximate depth the earthworms are found. Samples will consist of several grab samples that will be composited.
- If earthworms are not found within an index area, an attempt will be made to collect other soil invertebrates as an alternate. If alternate soil invertebrates are needed, a composite consisting of various species will most likely be the outcome; however, an attempt will be made to keep the number of species to a minimum.
- As a goal, each sample will consist of several individual worms (or invertebrates), enough to fulfill analytical requirements of approximately 20 grams per sample.
- Worms will be depurated for approximately 24 hours, rinsed with deionized water, composited, and weighed. Samples will be homogenized at the laboratory and a representative aliquot will be obtained for analysis.
- No quality assessments or audits are planned for this field event, however the field team leader will check logbooks and field notes daily to meet quality assurance objectives.

**Analysis Tasks:** The sample analyses for the Matteo site are target analyte list (TAL) metals and mercury.

**Schedule:** The field work is anticipated to occur over a 3 day period between April and May, 2016.

**QAPP Worksheet # 17g: Biota and Surface Soil Sampling**  
**Sampling Design and Rationale**  
**(UFP-QAPP Manual Section 3.1.1)**  
**(EPA 2106-G-05 Section 2.3.1)**

**Earthworm Sampling**

Earthworms (irrelevant of species) will be collected from the open field/ waste disposal area of the Matteo Site following an approach that will focus collection activities within index areas. This data will support the ecological risk assessment at three distinct areas of the site. **Figure 1** provides the location of these index areas. These areas will be located using a Global Positioning System (GPS) programmed with the coordinates of these locations.

An attempt will be made to collect one co-located earthworm and soil sample from each of these areas. If a sufficient mass of individuals to satisfy analytical requirements are not collected from these areas, worms will be opportunistically collected within other portions of the open field/ waste disposal and scrapyard areas where previously observed elevated lead concentrations (based on RI data) have been noted (**Figure 1**).

Within the general area(s) where earthworms are found, a co-located surface soil (collected at the approximate depth the earthworms are found) sample consisting of several grabs will also be collected. The specific number of individual grabs making up a composite sample will be dictated by the number of areas where earthworms are collected to make up one sample; however, enough soil grab samples to adequately represent the area, based on the professional judgment of the sampler and/or project ecologist, will be collected. The general area where earthworm and soil samples are collected will be recorded using a GPS. The approximate depths of where earthworms are encountered will also be noted in a field logbook.

Earthworms will be collected by hand with the aid of a stainless steel trowel. Within areas targeted for collection, soil will be hand-excavated and sorted through. In addition, any refugia (e.g., rock, logs, etc.) present will be overturned and the soil inspected for earthworms. Excess soil will be gently brushed off, and worms will be placed directly into a glass jar or holding container until sufficient tissue volume (20 grams) is collected. In summary, 10 samples (1 from each index area) reflecting the 20 gram requirement will be collected. One sample where earthworms are abundant will be selected for the field duplicate sample and 40 grams of sample will be collected from this area.

To ensure that the appropriate sample volume is collected, a digital scale will be used to verify that target masses are achieved. Co-located soil samples will be collected using a decontaminated stainless steel trowel and placed into a stainless steel bowl. Soil samples will be homogenized, and an aliquot of the composite sample will be placed into the appropriate sample container. Both earthworm and soil samples will be stored in a cooler on ice for further processing and shipment.

**QAPP Worksheet # 17g: Biota and Surface Soil Sampling**  
**Sampling Design and Rationale**  
**(UFP-QAPP Manual Section 3.1.1)**  
**(EPA 2106-G-05 Section 2.3.1)**

Worms will be returned to the CDM Smith warehouse for processing. Upon arrival, worms will be rinsed with deionized water, weighed, and placed into a clean, plastic container lined with deionized water-moistened paper towels. The worms will be stored in a cool dark space and allowed to purge their gut contents for approximately 24 hours. After depuration, the worms will be rinsed again with deionized water, patted dry with a clean paper towel, weighed, and placed in the appropriate sample container and frozen, if applicable, in the CDM Smith warehouse freezer before delivery to the laboratory. Biota samples will be packed on ice in cooler prior to shipment.

If earthworms are not found within the index areas, an attempt will be made to collect other soil invertebrates as an alternate. Alternative species selected will be those that are typically found in close association with soil such as woodlouse (i.e., pillbugs), earwigs, centipedes, crickets, etc.; flying insects (flies, moths, grasshoppers) will not be collected. If alternate soil invertebrates are needed, a composite sample consisting of various species will most likely be the outcome; however, an attempt will be made to keep the number of species to a minimum. Soil invertebrates will be held to depurate prior to final processing; however, the amount of soil entrained in their guts is expected to be minimal when compared to an earthworm as most of these organisms either prey on other invertebrates or feed on organic matter found on the forest floor.

**Sample Analyses:** Earthworm tissue and surface soil sample - TAL metals and mercury.

**Field Procedures for these Activities are detailed in:**

- Technical SOP 1-2      Sample Custody
- Technical SOP 2-1      Packaging and Shipping Environmental Samples:
- Technical SOP 2-2      Guide to Handling Investigation Derived Waste
- Technical SOP 4-1      Field Logbook Content and Control, see Worksheet #21 for modification
- Worksheet 17f      Decontamination Procedures (Final QAPP)

*Note: TSOP 2-1 is applicable to environmental samples identified as "air, water, plant material, sediment, or soil" and does not specify animal tissue; however, packing procedures are considered appropriate for animal (earthworm) tissue.*

**QAPP Worksheet #18: Field Quality Control Summary**  
**(UFP-QAPP Section 3.1.1 and 3.1.2)**  
**(EPA 2106-G-05 Section 2.2.6)**

Sample Types	Sampling Location ID Number	Matrix	Depth	Analytical Group	Concentration Level	Number of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
<b>Soil Investigation Samples</b>	ES-01 through ES-10	Surface soil	Approximately 0 to 12 inches or where earthworms are found	TAL Metal, Hg	Low/Medium	10; 1 field duplicate	TSOPs 1-3, 1-4	Worksheet #17g
<b>Biota Samples</b>	EW-01 through EW-10	Tissue - Earthworm	Not applicable	TAL Metals, Hg	Low/Medium	10; 1 field duplicate	Per methods described in Worksheet 17g	Worksheet 17g

**Acronyms:**

Hg – mercury

TAL – target analyte list

TSOP – technical standard operating procedure

ID – identification

### QAPP Worksheet #19 & 30

#### Sample Containers, Preservation, and Hold Times

**Laboratory:** DESA or CLP laboratory

**Required accreditations/certifications:** TBD

**Back-up laboratory:** Subcontract laboratory

**Sample delivery method:** FedEx Priority Overnight

Analyte/ Analyte Group	Matrix	Analytical and Preparation Method/ SOP	Accreditation Expiration Date	Container(s) (number, size, and type per sample)	Preservation	Preparation Holding Time	Analytical Holding Time	Data Package Turnaround Time
Metals, Mercury	Tissue	ISM02.3 and 7.2.2.8 of Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories	TBD	1-8 ounce wide mouth poly jar	Cool 0 to 6 degrees Celsius (°C)	48 hours if cooled only; 14 days if frozen or preserved (after death of specimen)	14 days	42 days validated
	Soil	ISM02.3	TBD	1-8 ounce wide mouth glass jar	TBD Cool 0 to 6 degrees Celsius (°C)	6 months	6 months	

**QAPP Worksheet #20: Field Quality Control Summary**  
**(UFP-QAPP Section 3.1.1 and 3.1.2)**  
**(EPA 2106-G-05 Section 2.2.6)**

Matrix	Analytical Group	Concentration Level	Analytical and Preparation SOP Reference	No. of Samples	No. of Field Duplicate Pairs	No. of Extra Volume Laboratory QC (e.g., MS/MSD) Samples	No. of Equipment Blanks	No. of Trip Blanks	No. of Total Samples
Soil	TAL Metals, Hg	Low/Medium	ISM02.3	10	1	1	0	0	12
Biota	TAL Metals, Hg	Low/Medium	ISM02.3 and 7.2.2.8 of Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories	10	1 (Split)	1	0		12

**QAPP Worksheet #26 & 27: Sample Handling, Custody, and Disposal**  
**(UFP-QAPP Manual Section 3.3)**  
**(EPA 2106-G-05 Section 2.3.3)**

**Sample Identification Procedures:** Each sample will be labeled with a specific sample ID that depicts a specific location. Each sample will also be labeled with a CLP or Non-CLP assigned number. Depending on the type of sample, additional information such as depth, sampling round, date, etc. will be added. Examples are provided below.

**Soil Samples (surface soil and subsurface soil)**

Soil samples will be collected from each index area within the general area of earthworm collection. The soil samples will be named using the following convention:

- Sample type (ES) will be followed by sample number (1 through 10) plus the soil location that corresponds to its index area.

For example soil sample number 1 collected from index area 3 will be labeled ES-01-03.

**Earthworm Samples**

**Earthworm Samples:**

Earthworm samples will be collected from each index area and named using the following convention:

- Sample type (EW) will be followed by sample number (1 through 10) plus the location that corresponds to the index area collected.

For example, the earthworm sample 1 from index area 5 will be labeled EW-01-05.

**Additional Notes**

Duplicates will use the same sampling scheme as described for each medium above, however the sample # will be modified by adding a "9" before the number. Therefore ES-01-03 becomes ES-01-903 and EW-05 becomes EW-01-905

**QAPP Worksheet #36**  
**Validation (Steps IIa and IIb) Summary Table**

<b>Step IIa/IIb</b>	<b>Matrix</b>	<b>Analytical Group</b>	<b>Concentration Level</b>	<b>Validation Criteria</b>	<b>Data Validator (title and organizational affiliation)</b>
Inorganics: Data Validation SOP for Region II - Data Validation Guidelines					
IIa / IIb	Soil/Tissue	TAL Metals and mercury	Low and Medium	SOP HW-3a and -3c* Rev 15, or DESA WS 35	ESAT DV Staff or DESA

DV – data validation

ESAT – Environmental Services Assistance Team

\* - Hazardous Waste Support Section SOP No. HW-3a Revision 0, ISM02.2 ICP-AES Data Validation. July 2015.

Hazardous Waste Support Branch SOP No. HW-3c Revision 0, ISM02.2 Mercury and Cyanide Data Validation. July 2015.

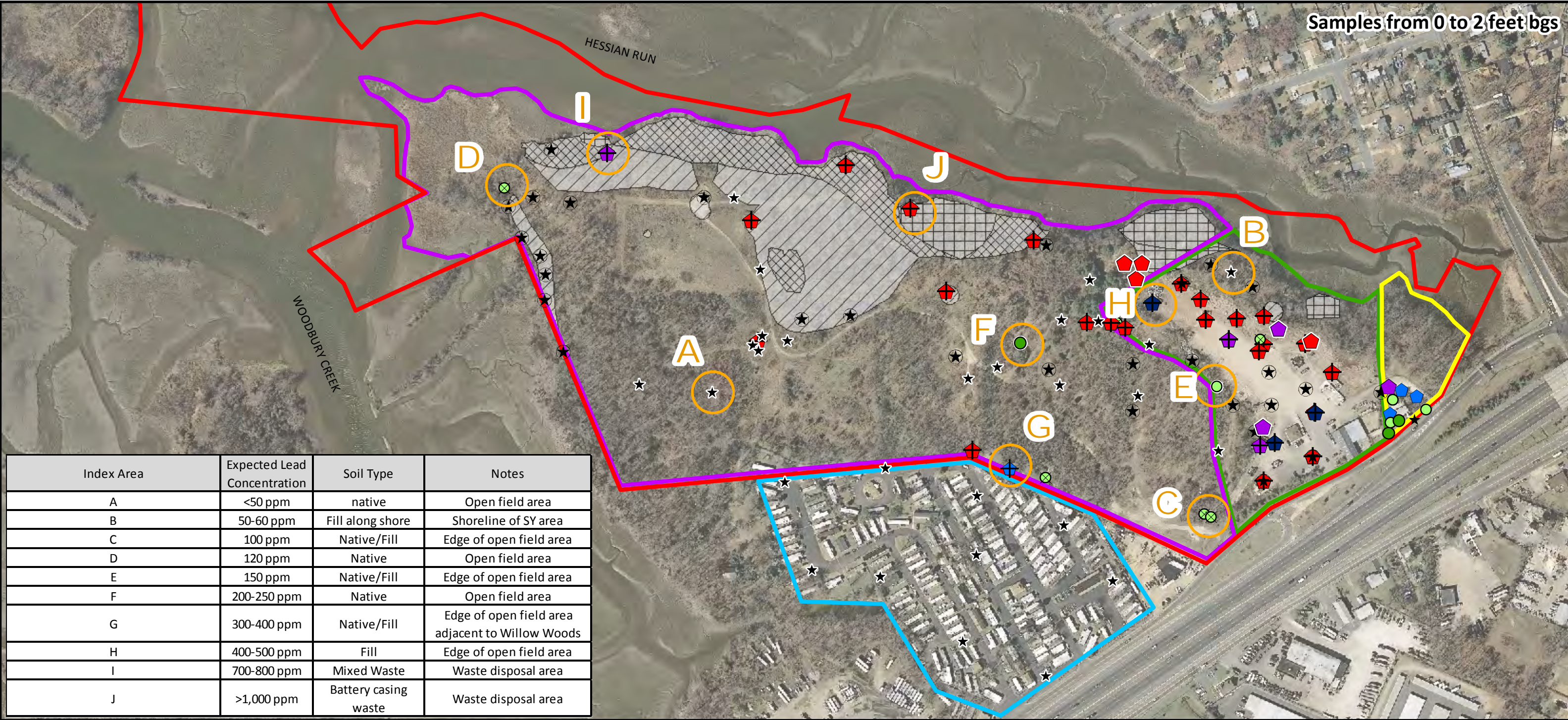






Figures





Samples from 0 to 2 feet bgs

RI Lead Concentrations  
mg/kg

- ★ <100
- 100-200
- 200-300
- 300-400
- 400-600
- 600-800
- >800

NJDEP Lead Concentrations  
mg/kg

- ★ <100
- 100-200
- 200-300
- 300-400
- 400-600
- 600-800
- >800

**Site Areas**

- Matteo Property
- Scrapyard Area
- Open Field/Waste Disposal Area
- Rental Home Area
- Willow Woods Property

**Delineated Waste Disposal Areas**

- Batteries and Waste
- Batteries
- Waste

**Notes**

- Soil sampling results are presented for both the CDM Smith RI (2012,2015) and NJDEP RI (2005) sampling.
- A removal action was performed on the Willow Woods property, the pre-removal results have not been incorporated.
- Historic sample depths may not be representative of current conditions, particularly in the Scrapyard area where 2-3 feet of clean gravel have been added.

0 150 300 600  
Feet

1 inch = 300 feet

Figure 1  
Proposed Biota Sampling Index Areas  
Matteo & Sons, Inc. Site  
Thorofare, NJ

CDM  
Smith





# Appendix A

## Appendix A

### Worksheets 15: Reference Limits and Evaluation Table

## QAPP Worksheet #15a

## Reference Limits and Evaluation Table - Soil Inorganics (Metals)

Inorganics (All units: mg/kg)	CAS Number	Criteria from the RI Report *			Project Action Limit (PAL)	Project Quantitation Limit Goal (PQLG)**	Analytical Method		Achievable Laboratory Limits***	
		Ecological Screening Criteria	Human Health Screening Criteria	RI Screening Criteria			MDLs	CRQL	MDLs	QLs
								ISM02.3 ICP- AES for Soil		
Aluminum	7429-90-5	NL	3,900	3,900	Not applicable; achievable laboratory limits sufficient for food chain models	1300	N/A	20	N/A	N/A
Antimony	7440-36-0	0.27	3.1	0.27		3	N/A	6	N/A	N/A
Arsenic	7440-38-2	18.00	0.006	0.006		0.006	N/A	1	N/A	N/A
Barium	7440-39-3	330.00	1,300	330		110	N/A	20	N/A	N/A
Beryllium	7440-41-7	21.00	0.5	0.5		0.50	N/A	0.5	N/A	N/A
Cadmium	7440-43-9	0.36	1	0.36		0.50	N/A	0.5	N/A	N/A
Calcium	7440-70-2	NL	NL	NL		NL	N/A	500	N/A	N/A
Chromium *	7440-47-3	26.00	12000	26.00		8.67	N/A	1	N/A	N/A
Cobalt	7440-48-4	13.00	2.3	2		2	N/A	0.5	N/A	N/A
Copper	7440-50-8	28.00	310	28		9	N/A	2.5	N/A	N/A
Cyanide	57-12-5	1.33	13	1.33		0	N/A	0.5	N/A	N/A
Iron	7439-89-6	NL	5500	5,500		1833	N/A	10	N/A	N/A
Lead	7439-92-1	11.00	59	11		4	N/A	1	N/A	N/A
Magnesium	7439-95-4	NL	NL	NL		NL	N/A	500	N/A	N/A
Manganese	7439-96-5	220.00	42	42		14	N/A	1.5	N/A	N/A
Mercury	7439-97-6	0.001	0.1	0.001		NL	N/A	0.1	N/A	N/A
Nickel	7440-02-0	38.00	31	31		10	N/A	4	N/A	N/A
Potassium	7440-09-7	NL	NL	NL		NL	N/A	500	N/A	N/A
Selenium	7782-49-2	0.52	7	0.52		3.50	N/A	3.5	N/A	N/A
Silver	7440-22-4	4.20	1	1		1	N/A	1	N/A	N/A
Sodium	7440-23-5	NL	NL	NL		NL	N/A	500	N/A	N/A
Thallium	7440-28-0	1.00	0	0		3	N/A	2.5	N/A	N/A
Vanadium	7440-62-2	7.80	39	8		1	N/A	2.5	N/A	N/A
Zinc	7440-66-6	46	600	46		15	N/A	6	N/A	N/A

Notes:

\*. Matteo and Sons, Inc Site Draft Remedial Investigation Report, September 2012

\*\* The PQLG will be considered achieved if the laboratory limits are met for lead.

\*\*\* achievable laboratory limits will be determined following laboratory assignment.

AES = atomic emission spectroscopy

MDL = method detection limit

CAS = Chemical abstract service

mg/kg = milligram per kilogram

CRQL = Contract Required Quantitation Limit

NA = Laboratory information not currently available

EPA = United States Environmental Protection Agency

NL = Chemical name not listed

ICP = Inductively couple Plasma

QL = Quantitation Limit

**QAPP Worksheet #15b**  
**Reference Limits and Evaluation Table - Tissue Inorganics (Metals)**

Inorganics (All units: mg/kg)	CAS Number	Project Action Limit (PAL)	Project Quantitation Limit Goal (PQLG)	MDLs	CRQL Analytical Method - ISM02.3 ICP-AES for Soil	Achievable Laboratory Limits*	
						MDLs	QLs
Aluminum	7429-90-5	Not applicable; achievable laboratory limits sufficient for food chain models	9	NS	20	N/A	N/A
Antimony	7440-36-0		1.7	NS	6	N/A	N/A
Arsenic	7440-38-2		1.9	NS	1	N/A	N/A
Barium	7440-39-3		0.3	NS	20	N/A	N/A
Beryllium	7440-41-7		0.2	NS	0.5	N/A	N/A
Cadmium	7440-43-9		0.2	NS	0.5	N/A	N/A
Calcium	7440-70-2		10	NS	500	N/A	N/A
Chromium <sup>+</sup>	7440-47-3		0.5	NS	1	N/A	N/A
Cobalt	7440-48-4		0.2	NS	0.5	N/A	N/A
Copper	7440-50-8		0.8	NS	2.5	N/A	N/A
Iron (2599)	7439-89-6		8	NS	0.5	N/A	N/A
Iron (2714)	7439-89-6		30	NS	10	N/A	N/A
Lead	7439-92-1		1	NS	1	N/A	N/A
Magnesium	7439-95-4		20	NS	500	N/A	N/A
Manganese	7439-96-5		0.2	NS	1.5	N/A	N/A
Mercury	7439-97-6		0.04	NS	0.1	N/A	N/A
Nickel	7440-02-0		0.3	NS	4	N/A	N/A
Potassium	7440-09-7		35	NS	500	N/A	N/A
Selenium	7782-49-2		2.1	NS	3.5	N/A	N/A
Silver	7440-22-4		0.8	NS	1	N/A	N/A
Sodium	7440-23-5		20	NS	500	N/A	N/A
Thallium	7440-28-0		1.7	NS	2.5	N/A	N/A
Vanadium	7440-62-2		0.3	NS	2.5	N/A	N/A
Zinc	7440-66-6		3	NS	6	N/A	N/A

Notes:

\* Dependent on the CLP laboratory assigned

AES = atomic emission spectroscopy

CAS = Chemical abstract service

CRQL = Contract Required Quantitation Limit

EPA = United States Environmental Protection Agency

MDL = method detection limit

MS = Mass spectroscopy

NS – Not specified

QL = Quantitation Limit